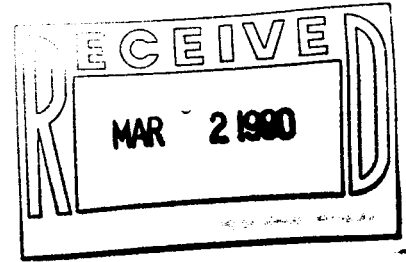


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WHITE-TAILED DEER RESEARCH
ON HOLLA BEND NATIONAL WILDLIFE REFUGE:
1989-90

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INTRODUCTION

The Fisheries and Wildlife Biology Program at ATU, in association with the Holla Bend N.W.R. staff, have continued to monitor the status of deer on the Refuge since 1985. This program was initiated to assess changes in population density, physical condition, and productivity. Biological data are collected from hunter-harvested deer at the Refuge check station, and from standardized spotlight counts conducted before and after the fall archery season. Measurements collected over the past 5 years, provide the most thorough data base available for any Arkansas' deer population.

RESULTS

Data were collected from 91 deer harvested during the regular 1989 archery season. Dressed weights were significantly lower in all sex-age classes (except adult females) than in any year since this study was initiated (Table 1). Holla Bend deer are typically among the heaviest deer in the state (Nelson 1985). The low body weights observed in 1989 were unexpected as crop yields on the Refuge were high this year (data on file at Holla Bend).

Kidney fat levels measured on 20 adult females were relatively high compared to levels measured in previous years. Kidney fat was collected only from adult females, as previous research has suggested that fat levels are more

consistent among individuals in this class during the period of the hunt. Abomasal parasite levels in these females were low (Table 3), providing additional evidence that does harvested in 1989 were not nutritionally stressed, relative to does harvested in other years of the study. Unfortunately kidney fat and APC levels were not measured among the sex-age classes that showed significantly lower body weights in 1989.

The mean number of antler points on yearling and adult males harvested during 1989 were lower than in previous years (Table 4). These data, in conjunction with body weight data, suggest that bucks were in significantly poorer condition this fall.

Twelve spotlight counts were conducted from 20 August through 30 September 1989, and again from 20 January through 14 February 1990. No significant decline was evident in the mean number of deer seen per census prior to the hunt (Table 5). However, the numbers seen during the January-February censuses were much lower than had been recorded during this period in previous years (Table 6).

SUMMARY

Data collected during the 1989 deer season, and during the standard spotlight counts suggest that white-tailed deer on Holla Bend may have been in poorer condition than in previous years, and that the size of the population was significantly lower in January-February 1990 than in the previous 5 years of the study.

Table 1. Mean dressed weights of deer harvested on Holla Bend N.W.R., 1985-89.

YEAR	SEX-AGE CLASS					
	FAWN		YEARLING		ADULT	
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	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
1985	50.5	44.0	98.4	75.0	123.5	82.8
1986	50.0	44.6	93.0	78.8	123.6	87.0
1987	55.0	48.2	110.0	77.5	131.0	87.7
1988	57.1	55.0	108.8	86.1	131.7	89.7
1989	42.1	35.9	90.0	62.9	108.5	86.5

Table 2. Mean kidney fat index (K.F.I.) and gross kidney fat weights from adult female deer harvested on Holla Bend N.W.R., 1985-1989. N = sample size.

YEAR	N	\bar{X} K.F.I.	\bar{X} Kidney Fat Weight (g)
1985	15	48.5	66.8
1986	10	48.6	55.5
1987	6	31.5	33.8
1988	13	63.7	78.9
1989	20	61.8	97.2

Table 3. Mean abomasal parasite counts (APC) from adult female deer harvested on Holla Bend N.W.R., 1985-1989.

YEAR	N	\bar{X} APC	S.E.
1985	12	425	86
1986	8	205	76
1987	6	505	99
1988	10	445	96
1989	15	250	48

* A mean APC value below 1000 is generally interpreted as an indication that the deer population is below carrying capacity.

Table 4. Mean number of antler points on adult and yearling males harvested on Holla Bend N.W.R., 1985-89.

YEAR	ADULT			YEARLING		
	N	\bar{X}	S.E.	N	\bar{X}	S.E.
1985	10	8.6	0.6	5	4.4	0.7
1986	10	7.7	0.6	5	4.6	1.1
1987	14	9.0	0.6	8	4.9	0.6
1988	9	9.2	1.0	13	4.8	0.6
1989	10	6.7	1.0	13	3.3	0.4

Table 5. Mean number of deer seen along the standard spotlight route during counts conducted in September 1985-89.

<u>YEAR</u>	<u>\bar{X} NUMBER OF DEER SEEN</u>
1986	29.9
1987	42.0
1988	50.0
1989	43.3

Table 6. Mean number of deer seen on roadside spotlights counts conducted during January 15 - February 15, 1990.

<u>YEAR</u>	<u>\bar{X} NUMBER DEER SEEN</u>	<u>ADULT FEMALE: MALE RATIO</u>
1986	146.5	11:1
1987	160.0	13:1
1988	153.9	6:1
1989	155.1	7:1
1990	107.1	30:1